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New York, NY 10022

EXAMINER

BLOUNT, STEVEN

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2661 | 2 |

DATE MAILED: 01/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/698,539

Applicant(s)

REINA, GUY

Examiner

Steven Blount

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 10 is objected to because of the following informalities: the period in line 14 is a minor typographical error. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, and 4 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Admitted Prior Art (hereinafter AAPA) in view of U.S. patent 5,117,418 to Chaffee et al and U.S. patent 6,252,902 to Simeon et al.

With regard to claim 1, AAPA teaches in figure 2 a method of calculating echo canceling coefficients to be used by an echo cancellation filter, wherein constellation encoder 16 generates a first signal; generating an echo signal based on coefficients (see 10); receiving a second signal 25; and subtraction at 14; and applying an FFT and doing serial to parallel at 28/26.

AAPA does not, however, teach calculating the EC coefficients based on "said transformed echo-cancelled signal", or the first signal to be a wide-band cyclic sequence.

Chaffee et al teaches, for use in a modem (col 5 lines 10+), generating an echo signal at point 16 through the combination of an original signal from 10 and a plurality of

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EC coefficients through the input from member 20 (see figure 1) in an overall echo cancellation unit of similar construction to AAPA, wherein the EC coefficients at 20 are calculated based on a signal which has been transformed by an FFT at 22. Note that member 18 (Chaffee, col 6, line 2) performs an IFFT, as does member 18 in figure 4 of the current application. Although a "wide-band" is not explicitly stated to be used, telephone channels which carry information from multiple modems (col 5 lines 10+) often operate in wideband, and one of ordinary skill in the art would, in addition to this, realize the applicability of operating the Chaffee et al in this manner.

Simeon et al teaches training a device (modem) through the use of a cyclical sequence. See col 4, lines 58+.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have fed the FFT/serial-parallel information produced from an original wide band cyclic signal of AAPA to its EC coefficient estimation generator, in light of the teachings of Simeon et al and Chaffee et al, in order to be able to update the filter coefficients in an adaptive and efficient manner.

With regard to claim 2 note the discussion of members 18 (IFFT) above, and see also page 2 lines 1+ and lines 15+ of AAPA.

With regard to claim 4, see page 2, lines 1 and 15 of AAPA where FIR is mentioned.

With regard to claim 5, see page 2, line 20 of AAPA.

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With regard to claim 6, "updating" the coefficients is mentioned throughout the Chaffee et al patent, including col 3 lines 35+ and this suggests very strongly an iterative process.

With regard to claim 7, see the discussion of correlation techniques in col 6 lines 35 to 55 of Chaffee et al.

With regard to claim 8, setting the length of the filter inherently sets the permitted number of cross-correlation coefficients; see also lines 35 to 55 of Chaffee as above.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Admitted Prior Art in view of U.S. patent 5,117,418 to Chaffee et al and U.S. patent 6,252,902 to Simeon et al as applied above, and further in view of U.S. patent 6,101,864 to Abrams et al.

AAPA/Chaffee et al/Simeon et al teach the invention as described above, but do not teach generating the signal through the use of a lookup table. This is taught in Abrams et al. See figure 2b. It would have been obvious to have AAPA/Chaffee et al/Simeon et al use a lookup table to generate the signal in light of the teachings of Abrams et al in order to simplify the apparatus and provide a uniform value for the signal.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Admitted Prior Art in view of U.S. patent 5,117,418 to Chaffee et al and U.S. patent 6,252,902 to Simeon et al as applied above, and further in view of U.S. patent 6,535,552 to Pessoa.

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AAPA/Chaffee et al/Simeon et al teach the invention as described above, but do not teach multiplying the filter coefficients by a window coefficient. This is taught in Pessoa. See col 4, lines 20+ and 60+. It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the windowing technique taught in Pessoa in AAPA/Chaffee et al/Simeon et al in order to produce a more accurate signal.

6. Claim 10 would be allowed if the objection to which it was made were corrected.
7. Steven Blount may be reached at 703-305-0319 between the hours of 9:00 and 5:30, Monday through Friday.


Ajit Patel
Primary Examiner

SB



1/8/04